



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of)	
)	
Chien Ho, et al.)	Group Art Unit: 1653
)	
Serial No.: 09/598,218)	Examiner: K. Carlson
)	
Filed: June 21, 2000)	
)	
For: LOW OXYGEN AFFINITY)	
MUTANT HEMOGLOBINS)	

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
Washington, DC 20231

Dear Sir:

This Information Disclosure Statement is filed in accordance with 37 C.F.R. §§ 1.56, 1.97 and 1.98. The items listed on the enclosed Form PTO-1449 may be deemed to be pertinent to the above-identified application and are made of record to assist the Patent and Trademark Office in its examination of this application. The Examiner is respectfully requested to fully consider the items and to independently ascertain their teaching.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that:
(1) additional information material to the examination of this

enabling; or (3) the above information constitutes prior art to the subject invention.

1. ☒ Enclosed is PTO Form 1449 (and a duplicate thereof).
2. ☐ Items listed on the enclosed Form PTO-1449 are not in the English language.
 - ☐ For each of the following items, an English-language translation of that item or a portion thereof or a concise explanation of the relevance of that item is enclosed: .
 - ☐ For each of the following items, a concise explanation of that item is incorporated in the specification of the above-identified application: .
 - ☐ For each of the following items, a corresponding U.S. or other English-language patent is enclosed. Please consider the U.S. or other English-language patents in accordance with the procedure set forth in MPEP § 609:

3. ☐ **Submission in Accordance with 37 CFR § 1.98(d).**

Any copy of the items listed on the enclosed Form PTO-1449 that is not enclosed with this Information Disclosure Statement was previously cited by or submitted to the Patent and Trademark Office in Application Serial No. [Ser. No.], filed [Date], of which the present application relies upon for an earlier filing date under 35 U.S.C. 120.

4. ☐ **Submission in Accordance with 37 CFR § 1.97(b).**

This Information Disclosure Statement is being filed

- ☐ With the application;
- ☐ Within three months of the filing date of a national application;
- ☐ Within three months of the date of entry of the national stage in an international application; or

and NO FEE is due for consideration of this Information Disclosure Statement.

5. ☒ **Submission in Accordance with 37 CFR 1.97(c).**

This Information Disclosure Statement is being filed before the first mailing date of either

☐ A final action under § 1.113; or

☐ A notice of allowance under § 1.311.

☐ A fee is due for consideration of this Information Disclosure Statement and the fee is paid below; or

☒ This Information Disclosure Statement is accompanied by one of the certifications pursuant to 37 CFR § 1.97(e), and NO FEE is due for consideration of this Information Disclosure Statement.

6. ☐ **Submission in Accordance with 37 CFR 1.97(d).**

This Information Disclosure Statement is being filed after the mailing date of either

☐ A final action under § 1.113; or

☐ A notice of allowance under § 1.311,

whichever comes first, but before payment of the issue fee, and is accompanied by

a. One of the certifications pursuant to 37 CFR § 1.97(e), which is set forth below;

b. The attached petition requesting consideration of this Information Disclosure Statement; and

c. The petition fee under 37 CFR § 1.170(d), which is paid below.

7. **Certification Pursuant to 37 CFR 1.97(e).**

☒ The undersigned certifies that each item of information contained in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart application not more than three months

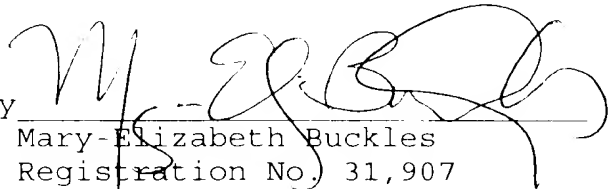
before the first mailing date of the present application.

cited in a communication from a foreign patent office in a counterpart foreign application, or to my knowledge after making reasonable inquiry, was known to any individual designated in 37 CFR § 1.56(c) more than three months prior to the filing of this Information Disclosure Statement.

8. Fee Payment Being Made.

- ☐ Enclosed
 - ☐ \$180.00 fee for submission under 37 CFR § 1.97(c).
 - ☐ \$180.00 fee for submission under 37 CFR § 1.97(d).
- ☐ A check in the amount of \$[Amount] to cover the fee payment is enclosed.
- ☐ Charge the fee to Deposit Account No. 18-0582. A duplicate copy of this communication is attached.
- ☒ The Director is hereby authorized to charge payment of any additional fees associated with this Information Disclosure Statement or credit any overpayment to Deposit Account No. 18-0582. A duplicate copy of this communication is enclosed.

Respectfully submitted,

By 
Mary-Elizabeth Buckles
Registration No. 31,907

REED SMITH LLP
Attorneys for Applicants

Mary-Elizabeth Buckles
1301 K Street, N.W.
Suite 1100-East Tower
Washington, D.C. 20005
(202) 414 9267

SERIAL NO.
09/598.218

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(Use several sheets if necessary)

(37 CFR 1.96(b))

APPLICANT
Chien Ho, et al.

FILING DATE
June 21, 2000

GROUP
1653

U.S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

[illegible]

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

EXAMINED			DATE CONSIDERED

2000

DATE CONSIDERED

051010760

TABLE I



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of)
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CHIEN HO, et al.) Group Art Unit:
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Serial No.: 09/598,218) Examiner:
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Filed: June 21, 2000)
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MUTANT HEMOGLOBINS)

INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. § 1.97(b)

Commissioner for Patents
Washington, DC 20231

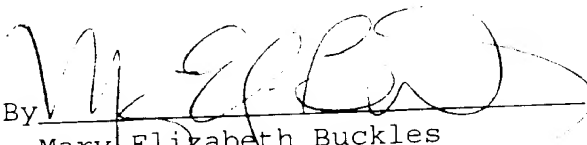
Dear Sir:

In compliance with the duty of disclosure as defined in 37 C.F.R. § 1.56 enclosed herewith for the Examiner's consideration is a copy of the publication listed on the attached Form PTO-1449. This statement is made pursuant to 37 C.F.R. § 1.97(b) since a first Office Action on the merits has not been mailed in the above-identified application.

This Information Disclosure Statement under 37 C.F.R. § 1.97 is not to be construed as a representation that:

results and the like reported by third parties are accurate or enabling; or (3) the above information constitutes prior art to the subject invention.

Respectfully submitted,

By 
Mary-Elizabeth Buckles
Registration No. 31,907

REED SMITH LLP
Attorneys for Applicants

Mary-Elizabeth Buckles
1301 K Street, N.W.
Suite 1100-East Tower
Washington, D.C. 20005
(202) 414-9267

Filed: December 22, 2000

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

(Use several sheets if necessary)

APPLICANT
Chien Ho, et al.

FILING DATE
June 21, 2000

GROUP



U.S. PATENT DOCUMENTS

EXAMINER NOTAL	TAB	PATENT NUMBER								ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	1	5	7	5	3	4	6	5		5/19/98	Ho, et al.			
	2	5	8	4	3	8	8	8		12/1/98	Ho, et al.			

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

	DOCUMENT NUMBER	PUBLICATION DATE	COUNTRY OR PATENT OFFICE	CLASS	SUBCLASS	TRANSLATION	
						YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

3	Dickerson, R.E., et al. <u>Hemoglobin: Structure, Function, Evolution, and Pathology</u> , pp 22-24, Benjamin/Cummings, Menlo Park, CA (1983)
4	Mulder, A.G., et al., <u>J. Cell Comp. Physiol.</u> 5:383 (1934)
5	Bunn, H.F., et al. <u>J. Exp. Med.</u> 129:909 (1969)
6	Chada, K., et al., <u>Nature (London)</u> 314:377 (1985)
7	Townes, T. M., et al. <u>EMBO J.</u> 4:1715 (1985)
8	Swanson, M.F., et al. <u>Bio/Technology</u> 10:557 (1992)
9	Groebe, D.R., et al., <u>Protein Expression and Purification</u> 3:134 (1992)
10	Wagenbach, M., et al. <u>Bio/Technology</u> 9:57 (1991)
11	DeLiano, J.J., et al. <u>Proc. Natl. Acad. Sci. USA</u> 90:918 (1993)
EXAMINER	
DATE CONSIDERED	

EXAMINER: Initial citation considered by Examiner

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE
(MODIFIED) PATENT AND TRADEMARK OFFICE

ATTY. DOCKET
NO.

SERIAL NO.
09/598,218

002547/20118

APPLICANT
Chien Ho, et al.

FILING DATE
June 21, 2000

GROUP

Use several sheets if necessary)
(37 CFR ~~101.96~~(b))

U.S. PATENT DOCUMENTS

[illegible]

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

[illegible]

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

	25	Moo-Penn, W.F., et al. <u>FEBS Lett.</u> <u>92</u> :53 (1978)
	26	O'Donnell, J.K., et al. <u>J. Biol. Chem.</u> <u>269</u> :27692 (1994)
	27	Baudin, V., et al. <u>Biochim. Biophys. Acta.</u> <u>1159</u> :223 (1992)
	28	Tsai, C.-H., et al. <u>Biochemistry</u> <u>38</u> :8751 (1999)
	29	Jeong, S.T., et al., <u>Biochemistry</u> <u>38</u> :13433 (1999)
	30	Kim, H.-W., et al. <u>Proc. Natl. Acad. Sci. USA</u> <u>91</u> :11547 (1994)
EXAMINER		DATE CONSIDERED

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U.S. PATENT DOCUMENTS

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[illegible]

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

31	Kim, H.-W., et al. <u>Biochemistry</u> 35 :6620-6627 (1996)
32	Ho, C., et al. <u>Blood Substitutes: Present and Future Perspectives of Blood Substitutes</u> (Tsuchida, E., Ed.), Elsevier Science SA, Lausanne, Switzerland, pp. 281-296 (1998)
33	Kim, H.-W., et al., <u>J. Mol. Biol.</u> 248 :867 (1995)
34	Carver, T.E., et al. <u>J. Biol. Chem.</u> 267 : 14443 (1992)
35	Brantley, R.E. Jr., et al. <u>J. Biol. Chem.</u> 268 : 6995 (1993)
36	Fieh, R.F., et al. <u>Biochemistry</u> 35 : 6976 (1996)
37	Dickerson, D.H., et al. <u>Nature</u> 381 : 893 (1998)

EXAMINER: Initial citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

SERIAL NO.
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[illegible]

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[illegible]

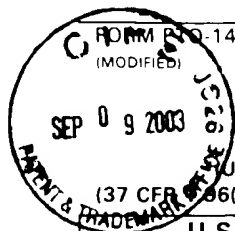
OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

38	Fung, L.W.-M., et al. <u>Biochemistry</u> 14 :2526 (1975)
39	Russu, I.M., et al. <u>Biochem. Biophys. Acta</u> 914 :40 (1987)
40	Puius, T.A., et al. <u>Biochemistry</u> 37 : 9258 (1998)
41	Shen, T.-J., et al. <u>Protein Eng.</u> 10 : 1085 (1997)
42	Kunkel, T.M. et al., <u>Proc. Natl. Acad. Sci. USA</u> 82 :488 (1985)
43	Hayashi, A., et al. <u>Biochem. Biophys. Acta</u> 310 :309 (1973)

DATE CONSIDERED _____

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FORM 1449 U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	TAB	PATENT NUMBER								ISSUE DATE	PATENTEE	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE

FOREIGN PATENT OR PUBLISHED FOREIGN PATENT APPLICATION

		DOCUMENT NUMBER								PUBLICATION DATE	COUNTRY OR PATENT OFFICE	CLASS	SUBCLASS	TRANSLATION	
														YES	NO

OTHER DOCUMENTS (Including Author, Title, Date, Relevant Pages, Place of Publication)

	44	Antonini, E., <u>Physiol. Rev.</u> 45:123 (1965)
	45	Plateau, P., et al. <u>J. Am. Chem. Soc.</u> 104:7310 (1982)
	46	Wyman, J., <u>Adv. Protein Chem.</u> 4:407 (1948)
	47	Wyman, J., <u>Adv. Protein Chem.</u> 19:233 (1964)
	48	Dalvit, C., et al., <u>Biochemistry</u> 24: 3398 (1985)
	49	Levy et al., <u>Biochemistry</u> 29: 9311 (1990)
	50	Levy, et al., <u>Biophys. J.</u> 61: 750 (1992)

EXAMINER Initial citation considered Drawings through citation to be in conformance and not considered
include copy of this form with next communication to applicant

FORM PTO-1449 U.S. DEPARTMENT OF COMMERCE
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51	Blumberg, et al., <u>Adv. Chem. Series 100</u> : 271 (1991)
52	Barrick, D., et al. <u>Nat. Struct. Biol.</u> <u>4</u> :78 (1997)
53	Ho, C., <u>Adv. Protein Chem.</u> <u>43</u> :153 (1992)
54	Sun, D.P., et al. <u>Biochemistry</u> <u>36</u> :6663 (1997)
55	Simplaceanu, et al. <u>Biophys. J.</u> <u>79</u> :1146 (2000)
56	Takahashi, S., et al. <u>Biochemistry</u> <u>19</u> :5196 (1980)

XAMINER: Initial citation considered. Draw line through citation if not a confirmation and not considered. Include copy of this form with next communication to applicant.

